

What is claimed is:

1. A method for resampling a first image sampled on a first sample grid comprising:
computing a filter for applying to the first image, including computing a spatially quantized representation of the filter wherein a degree of spatial quantization of the filter depends on factors including a measure of scale relating the first sample grid and a desired sample grid.
2. The method of claim 1 further comprising:
computing a desired image sampled on the desired sample grid, including
computing samples of the desired image according to an application of the spatially quantized representation of the filter to the first image.
3. The method of claim 1 further comprising:
accepting data characterizing a geometric transformation relating the first sample grid and the desired sample grid; and
computing the measure of scale from the data characterizing the geometric transformation.
4. The method of claim 1 wherein computing the filter includes selecting the number of spatial samples of the spatially quantized representation of the filter.
5. The method of claim 4 wherein computing the spatially quantized representation of the filter includes computing values of the filter each associated with one of a number of equal spatial domains of the filter.
6. The method of claim 1 wherein computing the filter for applying to the first image includes selecting a parametric family of filters.
7. The method of claim 6 wherein computing the filter for applying to the first image includes determining parameter values for the filter.

8. The method of claim 7 wherein determining the parameter values for the filter includes computing the parameters values based on factors including the measure of scale.
9. The method of claim 1 further comprising accepting a user input specifying a characteristic of the resampling, and using the user input in the computing of the filter for applying to the first image.
10. The method of claim 9 wherein accepting the user input includes accepting an input related to a characteristic of the desired image.
11. The method of claim 10 wherein the characteristic of the desired image includes a visual characteristic of the desired image.
12. The method of claim 9 wherein accepting the user input includes accepting an input related to a processing characteristic for the resampling.
13. The method of claim 12 wherein the input related to the processing characteristic includes an input related to a processing speed.
14. The method of claim 1 wherein the degree of spatial quantization of the filter depends on factors that further include characteristics of a computation device for performing the resampling.
15. The method of claim 14 wherein the characteristics of the computational device include a memory size characteristic.
16. The method of claim 15 wherein the memory size characteristic includes a cache memory size.
17. The method of claim 14 wherein the characteristics of the computational device include a processor characteristic.

18. A method for resampling a first image sampled on a first sample grid comprising:
accepting data characterizing a geometric transformation relating the first sample grid and a desired sample grid;
determining a measure of scale relating the first sample grid and the desired sample grid from the data characterizing the geometric transformation;
and
computing a filter for applying to the first image, including selecting characteristics of the filter according to the determined measure of scale.
19. The method of claim 18 wherein the filter is a member of a parametric family of filters and selecting the characteristics of the filter includes selecting parameter values for the filter according to the determined measure of scale.
20. The method of claim 18 wherein the data characterizing the geometric transformation includes data characterizing an affine transformation.
21. The method of claim 18 wherein the data characterizing the geometric transformation includes a minification factor.
22. The method of claim 18 wherein the data characterizing the geometric transformation includes a magnification factor.
23. A method for resampling a first image comprising:
accepting a user input specifying a characteristic of a desired resampled image;
and
computing a filter for applying to the first image in computing the desired resampled image, including selecting characteristics of the filter according to the accepted user input.
24. The method of claim 23 wherein accepting the user input includes accepting an input related to a visual characteristic of the desired image.

25. The method of claim 24 wherein the visual characteristic is related to a degree of sharpness of the resampled image.
26. Software stored on a computer-readable medium comprising instructions for causing a computer to:
- compute a filter for applying in resampling a first image sampled on a first sample grid, including computing a spatially quantized representation of the filter wherein a degree of spatial quantization of the filter depends on factors including a measure of scale relating the first sample grid and a desired sample grid.
27. The software of claim 26 wherein the instructions further cause the computer to:
- accept data characterizing a geometric transformation relating the first sample grid and the desired sample grid; and
 - compute the measure of scale from the data characterizing the geometric transformation.
28. The software of claim 26 wherein computing the filter includes selecting the number of spatial samples of the spatially quantized representation of the filter.
29. The software of claim 28 wherein computing the spatially quantized representation of the filter includes computing values of the filter each associated with one of a number of equal spatial domains of the filter.
30. The software of claim 26 wherein computing the filter for applying to the first image includes selecting a parametric family of filters.
31. The software of claim 30 wherein computing the filter for applying to the first image includes determining parameter values for the filter.

32. The software of claim 31 wherein determining the parameter values for the filter includes computing the parameters values based on factors including the measure of scale.
33. The software of claim 26 further comprising accepting a user input specifying a characteristic of the resampling, and using the user input in the computing of the filter for applying to the first image.
34. The software of claim 33 wherein accepting the user input includes accepting an input related to a characteristic of the desired image.
35. The software of claim 34 wherein the characteristic of the desired image includes a visual characteristic of the desired image.
36. The software of claim 33 wherein accepting the user input includes accepting an input related to a processing characteristic for the resampling.
37. The software of claim 36 wherein the input related to the processing characteristic includes an input related to a processing speed.
38. The software of claim 26 wherein the degree of spatial quantization of the filter depends on factors that further include characteristics of a computation device for performing the resampling.
39. The software of claim 38 wherein the characteristics of the computational device include a memory size characteristic.
40. The software of claim 39 wherein the memory size characteristic includes a cache memory size.
41. The software of claim 38 wherein the characteristics of the computational device include a processor characteristic.

42. A system for resampling a first image sampled on a first sample grid comprising:
means for computing a filter for applying to the first image, including means for
computing a spatially quantized representation of the filter wherein a
degree of spatial quantization of the filter depends on factors including a
measure of scale relating the first sample grid and a desired sample grid.
43. Software stored on a computer-readable medium comprising instructions for
causing a computer to:
accept data characterizing a geometric transformation relating a first sample grid
for a first image and a desired sample grid;
determine a measure of scale relating the first sample grid and the desired sample
grid from the data characterizing the geometric transformation; and
compute a filter for applying to the first image, including selecting characteristics
of the filter according to the determined measure of scale.
44. A system for resampling a first image sampled on a first sample grid comprising:
means for accepting data characterizing a geometric transformation relating the
first sample grid and the desired sample grid;
means for determining a measure of scale relating the first sample grid and a
desired sample grid from the data characterizing the geometric
transformation; and
means for computing a filter for applying to the first image, including means for
selecting characteristics of the filter according to the determined measure
of scale.
45. Software stored on a computer-readable medium comprising instructions for
causing a computer to:
accept a user input specifying a characteristic of a desired resampled image; and
compute a filter for applying to a first image in computing the desired resampled
image, including selecting characteristics of the filter according to the
accepted user input.

46. A system for resampling a first image comprising:
- means for accepting a user input specifying a characteristic of a desired resampled image; and
 - means for computing a filter for applying to the first image in computing the desired resampled image, including means for selecting characteristics of the filter according to the accepted user input.

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